The Report committee for Sarah Ruth Schwartz

Certifies that this is the approved version of the following report

Repping the Streets, Repping the Hometown: A Sociophonetic Analysis of Dialectal Variation in the Moroccan Hip Hop Community

APPROVED BY THE SUPERVISING COMMITTEE:

Kristen Brustad, Supervisor

Barbara Bullock, Co-Supervisor

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by

Sarah Ruth Schwartz

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Sarah Ruth Schwartz, MA

The University of Texas at Austin, 2017

SUPERVISOR: Kristen Brustad

CO-SUPERVISOR: Barbara Bullock

The following study is a sociophonetic analysis of coronal stop affrication in the casual speech of four Moroccan rappers from two regions of the country: the cities of Salé and Casablanca, where the phoneme is /t/ is realized as the palato-alveolar affricate [tʃ], and the city of Meknès, where the phoneme /t/ is realized as the alveolar affricate [ts]. Casablanca and Salé host two of the most important rap scenes in the country, and Meknès hosts a significant, but less prominent, rap scene; this would suggest that the rappers from Meknès will attempt to access the Slaoui-Cassaoui variant [tʃ] in order to access the authenticity inherent in the more important rap scene's street code. However, the varying attitudes between the two Meknassi rappers towards adopting the Slaoui-Cassaoui street code indicates a more complex construction of the notion of authenticity within the Moroccan Hip Hop community.

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1 Introduction

The following is a sociophonetic analysis of variation in affricated realizations of the voiceless coronal stop /t/ in two dialects of Moroccan Arabic – the coastal Atlantic Moroccan dialect that stretches from the city of Salé to around the city of El-Jadida, and the Moroccan dialect in the central Tafilalt region – that seeks to connect pronunciation of this feature to the exchange of symbolic power within the community of Moroccan rappers, as well as the issue of authenticity and "keeping it real" as a Hip Hop artist. This study will answer the questions: Is affricated /t/ a salient linguistic marker within Moroccan Hip Hop community? Do Moroccan Hip Hop artists strategically use this feature to help position themselves within the Moroccan Hip Hop community? And finally, what implications does this have for the meaning of authenticity within the Moroccan Hip Hop community?

The paper presents a case study of four Moroccan rappers: two from the coastal region (from the cities of Salé and Casablanca), and two from Tafilalt (from the city of Meknès). Casablanca and Salé host two of the most prominent rap scenes in the country, and Meknès hosts a rap scene that is prominent, but less prominent than the Cassaoui rap scene. Thus, we may assume that the street speech of Casablanca and Salé hold prestige within the Moroccan Hip Hop community, and we might expect the Meknassi respondents to accommodate to the Cassaoui pronunciation of /t/ by realizing the phoneme as the palato-alveolar affricate, rather than the alveolar affricate that is native to their dialect. However, the results suggest that the relationship between regional dialect and the Hip Hop community is more complicated than this. While the analysis definitively shows regional variation in the affricated realization of /t/, it does not definitively show accommodation to the Cassaoui dialect: one Meknassi speaker claimed to try to speak "like a Cassaoui", but on average produced /t/ in a manner consistent with the Meknassi

dialect, and the other Meknassi speaker intentionally refused to use features of the Cassaoui dialect, in order to better represent his local heritage. This result indicates two main findings: first, that variation in /t/ affrication may not be a highly salient linguistic capital in this community, and second, that accessing authenticity in the Moroccan Hip Hop community reflects an inherent tension between accessing the prestige of street code and repping one's hometown.

2 Background

2.1 Language and Capital: The Linguistic Market

The aim of this study is to understand the ways in which members of the Moroccan Hip Hop community strategically use linguistic features – specifically, affricated realizations of the voiceless coronal stop /t/ in positioning themselves within the community and in defining the boundaries of their community. In general, the Global Hip Hop Nation (GHHN) is a movement that directly uses language as a medium for the expression of oppression and relative inequality. To the GHHN language is more than a communicative tool – it is both a creative medium and a symbol of the community's resistance (Alim 2004: xiii). In this view, language exists not simply as a communicative medium, but as a tool for the collection and exchange of power.

Bourdieu's (1977) theory of the "linguistic market" allows us to analyze this linguistic exchange of power. Bourdieu presented this theory to challenge Chomsky's notion of linguistic competence – whereas linguistic competence in the strictly Chomskian sense consists of the grammatical use of language, Bourdieu theorized that to use language properly speakers must use language in a way that is socially acceptable within a speech community (1977: 646). Linguistic acceptability is governed by power relations within society - whether or not a community member may acceptably use a particular speech act, or a linguistic capital, is acceptable is dependent upon the relative power of the person trying to access the linguistic capital. In Bourdieu's words: "…competence is also the capacity to command a listener. Language is not only an instrument of communication or even of knowledge, but also an instrument of power… Hence the full definition of competence as the right to speech, *i.e.* to the legitimate language, the authorized language which is also the language of authority," (648). Thus, a relatively powerful member of a given speech community has a legitimate claim to the

use of the language of authority, whereas a relatively less powerful member of that community must attempt to access the language of authority in order to gain symbolic authority, by way of accessing salient linguistic capital. In this context, we may expect the Meknassi rappers in this study, as members of a less prominent rap scene relative to Casablanca or Salé, to accommodate to the Cassaoui palato-alveolar affricate in order to gain symbolic authority within the community.

Jamin, Trimaille, and Gasquet-Cyrus (2006) describe a pattern of usage and attitudes towards the palatalized variant of /t/ in Grenoble and Marseille that is consistent with the effects of power relations upon the linguistic market. In a study on patterns of production of /t/ at a barbecue in Grenoble, the authors note that two of the more marginal members of the group of informants used the palatalized variant frequently and often incorrectly (346), consistent with Bell and Gibson's (2011: 568) definition of "overshoot", while the leaders of the group used the feature with the most consistent accuracy, but did not openly acknowledge it as a marker of their speech (Jamin, Trimaille, and Gasquet-Cyrus 2006: 348). Furthermore, both this study and Jamin (2004) note the rapid spread of palatalized /t/ amongst white, middle-class speakers in Marseille and Paris (who are not members of the Hip Hop community but are marginal members of the urban speech community), attributing it to the feature's presumed connection to street language and Hip Hop culture. This result connects to my study in two ways: the perceived connection between the affricated coronal stop and Hip Hop street code, and also the connection between affrication of /t/ and North Africans, as a widely recognized marker of the speech of North African immigrants in the *cités* of Paris and Marseille – while the existence of this feature in French predates North African immigration to France, it has been reanalyzed as a marker of

North African French as a result of racial stereotypes about North African immigrants crowding the *cités* and speaking with affricated /t/'s (Jamin 2004).

2.2 Language, Style, and the Global Hip Hop Nation

2.2.1 The Street-Conscious Identity

The connection between street language and Hip Hop culture is critical – Hip Hop is an essentially urban art form, and the language of the streets is the language of the art. Throughout the literature on Hip Hop linguistics, authors describe the "code of the streets" (understood within the US Hip Hop community to be African American English, AAE, per Alim 2004) as the acceptable linguistic style to convey authenticity[1] as a member of the Hip Hop community (Alim 2003, Alim 2004, Alim 2006, Pennycook 2007, Terkourafi 2010). Alim states in his (2003) study of the casual speech and performance styles of the rappers Eve and Juvenile that rappers must cultivate a "street-conscious identity" in their lyrics in order to create a sense of familiarity between themselves and the urban African American community. He compares rates of copula deletion, the "showcase variable" of AAE (2003: 46), between the respective artists' casual speech (taken from interviews) and their performance speech (taken from song lyrics). Table 1 below shows the relative rates of copula deletion (both in the singular and the plural) that Alim counted in his data.

Speaker	**Style**	**% Deletion "is"**	**%Deletion "are"**
Eve	Casual	3.39%	12%
	Performance	28%	87%
Juvenile	Casual	55%	57.58%
	Performance	68.75%	78.85%

Table 1: Rates of copula deletion in Alim (2003: 50)

[1] I will address the complicated issue of authenticity in Hip Hop below.

Alim finds a significant difference in the rate of copula deletion between Eve's casual speech and performance speech, and in the rate of copula deletion between Juvenile's casual speech and performance speech. Alim posits that this represents "street-conscious copula deletion": a conscious shift away from Standard American English (SAE) in order to express kinship with the African American community. In his words: "Hip Hop artists, by the very nature of their circumstances, are ultraconscious of their speech… Speech is consciously varied toward the informal end of the spectrum [AAE] in order to maintain street credibility" (53). Maintaining a street-conscious identity, he concluded, is crucial to rappers' success within the Hip Hop community, because it was a sign that they could authentically identify with Hip Hop's main audience. This notion of the street-conscious identity has expanded to the GHHN – while the concept of local "street language" differs from community to community outside of the United States, AAE is still considered a language of prestige within the GHHN, and part of accessing authenticity within the global community involves using both themes and linguistic features of AAE (Williams 2010).

2.2.2 Real Talk: Authenticity in Rap

The concept of authenticity, or "keepin it real", is a significant feature of Hip Hop culture. However, in the context of the GHHN "authenticity" becomes a highly complex matter – while rappers across the globe are still expected to pay homage Hip Hop's origins in the US Black community, a rapper from Korea, for example, could not claim authenticity if they only repped US Hip Hop culture and not their own culture. Thus, on one level maintaining authenticity in Hip Hop manifests as a dialectic between the global and the local, or the "glocal", to use a term common in Hip Hop scholarship (Androutsopoulos 2009: 44). Furthermore, Hip Hop artists also face a tension between representing the community at large and remaining true

to themselves. As Terkourafi (2010: 7) states: "Establishing authenticity of the genre, as well as of oneself as a representative of it, then amounts to a gesture of emancipation from these multiple lineages, and a declaration of one's own unique identity and right to exist as an independent new identity". However, as Pennycook (2007: 103) explains, neither can authenticity be limited to "an individualist obsession with the self". Instead, authenticity to oneself requires a "dialogical engagement with community". Thus, accessing authenticity within Hip Hop requires both negotiating the tension between the culture of the GHHN and local culture, and the tension between being true to oneself and being true to one's community.

As one may expect, this process is highly variable – the balance between the global and the local, and the individual and the communal, that rappers must attain in order to access authenticity differs widely between Hip Hop communities. In the Hip Hop literature, the process of negotiating these tensions and defining authenticity is called "localization" (Pennycook 2007), and it is a prominent topic in Hip Hop scholarship. Localization of culture may concern the form of language. For example, Hassa (2010) describes the use of code-switching within French rap as a form of localization – the Arab-French rappers she studies use Arabic terms[2] in order to represent their home cultures and the French streets, evoking the connective marginality between Arab immigrants in France and African Americans in the US (Osumare 2007 cited in Terkourafi 2010: 3), and use Verlan in order to specifically represent their local Southern French identity. Localization may also concern the subject matter. For example, Lee (2010) shows that South Korean Hip Hop artists localize their art by focusing on subjects that are particularly salient in Korean culture, such as filial piety - whereas in US culture ageism typically targets older individuals, the Korean culture of respect for one's elders manifests in ageist disses targeting people who are too young – resistance to the military draft, and the culture of over-working. In

[2] Despite the fact that they are typically not conversant in Arabic.

Morocco, as I will explain below, localization involves both form and subject matter, resulting in a highly diverse Hip Hop community.

2.3 Setting the Scene: The Moroccan City and Hip Hop Culture

This study centers on speakers from two dialect regions in Morocco representing two prominent Hip Hop scenes[3]. The first area I will consider is the dialect region between the western coastal cities of Casablanca and Salé. Both Casablanca and Salé represent a type of new urbanism that is reflective of the urban culture to which global Hip Hop culture pays homage. Before the colonial period, Casablanca was a relatively small city – unlike Meknès, Rabat, Fès, and Marrakech, it was not an imperial city, nor did it play a particularly important political role in the Sultanate of Morocco, and by 1950 its population totaled about 700,000 people. Since independence, and particularly in the 1960's and 1970's, the population has grown extremely rapidly, and the current population is nearly 4,000,000 (Hachimi 2007: 101). Similarly, Salé was a relatively minor city (compared to its immediate neighbor, Rabat) in the pre-colonial period, and saw a population boom in the 1970's (Triki 1991). In the wake of these population booms, Casablanca has become the economic powerhouse of the country, with the rapid expansion serving wealthy capital owners while creating the conditions for the type of poverty and economic depression amongst the lower classes that mirror the conditions under which Hip Hop was born in the Bronx in the 1970's and 1980's (Miller 2007). Unsurprisingly, Casablanca and Salé are home to two of the oldest Hip Hop scenes in Morocco (there is some debate as to which city produced the first rappers in Morocco, as I discovered when conducting interviews). In particular, one lower class neighborhood in Casablanca is connected with music and creativity – *el-Hayy el-Mohammediyy*, which in the 1970's was one of Casablanca's biggest slums and also

[3] Three Hip Hop scenes, to be precise, but because of the demographic and cultural similarities between Casablanca and Salé I am subsuming them under one category.

the birthplace of Nass el Ghiwane, the iconic Moroccan band that became a creative symbol of resistance against the system (Caubet 2010). Today, Casablanca is home to some of the country's most prominent Hip Hop artists, producers, venues, and music festivals (Caubet, Benlyazid, and Mettour 2007).

Meknès, on the other hand, is both a relatively smaller city and an imperial city, with deep ties to traditional Moroccan culture; one of the city's main claims to fame is the 'Issawi Sufi brotherhood, which is also the subject of Meknassi rap crew H-Kayne's most famous track, " 'Issawa Style". H-Kayne, one of the city's most widely recognized rap crews, produces *taqlidi* ('traditional') rap: rap about traditional Moroccan values (Almeida 2015). Here we see localization at work – whereas the music of Hip Hop artists in Casablanca is typically more reflective of broader themes found in Hip Hop throughout the GHHN (e.g. poverty, systematic oppression, resistance to authority), *taqlidi* rap coming out of imperial cities such as Meknès (H-Kayne), Fès (Fès City Clan), and Marrakech (Fnaïre) consists of a call to respect the dominant Muslim nationalist culture, and particularly to respect the King and the monarchy. While Meknès has a history of being a center for Hip Hop culture in Morocco, hosting a yearly Hip Hop arts festival and being the home of several prominent Hip Hop dance crews, it hosts a less prominent rap scene than larger urban centers such as Casablanca, Salé and Tangier, with rappers and producers (such as M2 in this study) often leaving the city in order to find more opportunities in Casablanca.

2.4 Affrication of /t/

The two regions described in this study also differ with respect to dialect. This study focuses in particular in variation in the production of the phoneme /t/, with the two regions varying in place of articulation of the frication period. In Meknès (as well as in neighboring Fès)

/t/ is typically realized as the alveolar affricate [ts], and throughout the Atlantic coast, from Salé to as far south as El-Jadida, /t/ is typically realized as the palato-alveolar affricate [tʃ] (Caubet, personal communication). Unlike coronal stop affrication in other dialects of Arabic (which I will discuss more below), neither affricated realization is the result of secondary palatalization triggered by a following high front vocoid. According to Naciri (2014), affrication may be blocked by a preceding sibilant or following sonorant consonant, but the affricated realizations of the phoneme are otherwise universal in these dialects. In general, these two features are not well described in the literature on Moroccan dialectology. Heath (1982) briefly mentions the affricated realization of /t/ in Jewish urban dialects in the Fès-Tafilalt region, and Heath (2002) briefly mentions that the unemphatic coronal stop /t/ typically has an assibilated release, and that "…assibilated *t* is characteristic of all the old urban dialects of Morocco, but not [Casablanca] or [Marrakech]" (135), alluding to the claim among Moroccan dialectologists that the [ts] realization is representative of old urban, pre-Hilalian Moroccan dialects and that the [tʃ] realization is representative of the Hilalian Moroccan dialects (Caubet, personal communication). This characterization, however, ignores the spread of [tʃ] to old urban centers such as Rabat, as described in Naciri (2014). Thus, this feature variation requires further study. Furthermore, no prior study has described these variants acoustically: this study constitutes the first acoustic analysis of affricated /t/ in Moroccan dialects.

Affrication of /t/ is well described in the sociolinguistic literature on other dialects of Arabic and on urban dialects of French. Haeri describes coronal stop palatalization in The Sociolinguistic Market of Cairo (1997), focusing on the distinction in production between light palatalization (/t/ realized as [tʲ]) and full palatalization (/t/ realized as [tʃ]). She found that variation between the two realizations is dependent upon gender and class, with upper middle-

class women producing light palatalization, and middle and lower-middle class women producing full palatalization, with the fully palatalized variants subsequently becoming stigmatized as "low-class". Similarly, several works on urban dialects of French have mentioned the affricated realization of /t/ as being a prominent feature of *cité* or *beur* speech, or the French equivalent of what Alim (2004) describes as "the code of the streets" – in French society the affricated realization of /t/ is generally stigmatized, but has covert prestige largely because of the connection between street speech and Hip Hop culture, similar to AAE in the United States (Gasquet-Cyrus 2013, Jamin, Trimaille, and Gasquet-Cyrus 2006, Jamin 2004, Gadet and Hambye 2014).

3 Data and Methodology

3.1 Data Collection

The data included in the study was collected over a 2-month period of fieldwork in Morocco between June and August 2016. The author conducted 14 sociolinguistic interviews in total (7 with slam poets and 7 with rappers), and the current study includes data from 4 interviews. The 4 informants were chosen and labeled in this study based on their city of origin and native dialect – informants M1 and M2 are from the city of Meknès, and informants C and S are from the cities of Casablanca and Salé, respectively. All of them are rappers (with one, M2, practicing both rap and slam poetry), male, between the ages of 22 and 27 at the time of interview, and educated at the university level. M1 and M2 natively realize the phoneme /t/ as the alveolar affricate [ts], and C and S natively realize the phoneme /t/ as the palato-alveolar affricate [tʃ]. Informants M1, S, and C have spent their entire lives primarily living in the cities of their birth, with some travel, and M2 moved to Casablanca from Meknès in 2009 for his university studies and has lived there ever since, with a few 2-3 month periods spent with his family in Meknes. Furthermore, informant M1 has frequent and sustained contact with native English speakers and speaks English fluently. M2 also has proficiency in English and French, and neither S nor C speak English but are fluent in French.

All interviews were recorded with a Tascam DR-100mkIII Linear PCM Recorder and a Shure A-10 head mounted microphone, sampled at a rate of 44.1 kHz. Recordings were taken at various locations, at the informants' convenience – one at a coffee shop, one at a recording studio, one at the author's home, and one in the informant's car (in the absence of any other

suitably quiet environment). All measures were taken to ensure that recordings were done in the quietest possible environment, given the circumstances.

The elicitation involved a variation on the traditional variationist sociolinguistic model following Labov (1984) and Tagliamonte (2006) with a semi-structured interview intended to elicit casual speech, reading speech (from a word list), and a performance register. The semi-structured interview was adapted from the traditional Labovian interview to include questions about the informants' experience as artists, their political opinions, and metalinguistic questions about their perception of dialect variation in Morocco. Such questions included whether they had ever participated in a political protest, what they thought of people who continued to attend protests, and what role, if any, verbal art plays in the process of political change, testing whether the informants felt an obligation to follow the trend of "conscious rap" in global hip-hop (Terkourafi 2010, 3). Furthermore, these questions were added in order to elicit what they understood to be the limits of their community of practice; that is, whether social and political activism constituted one of the set practices constructed by the community of Moroccan rappers, and thus was part of their performative identity. The word list consisted of 58 items in total, with 30 items including the target phoneme. Finally, instead of reading a passage to elicit performance speech (as is traditional in sociolinguistic interviews), the informants were asked to perform one of their songs or poems. This study focuses on data from the semi-structured interviews.

3.2 Data Analysis

All data was annotated and measured in Praat 6.0.14 (Boersma and Weenik 2016). In order to differentiate between different realizations of /t/, I decided to focus on the frication period of each token. Following Kolgjini's (2004) thesis on affrication of coronals and velars in Albanian, each token of /t/ was separated into the closure period and the frication period, with the frication

period measured from the onset of aperiodic high-amplitude frication noise until the offset thereof. Figure 1 below shows this coding system, where "f" on the first and second tiers of the text grid indicates the frication period following the stop closure.

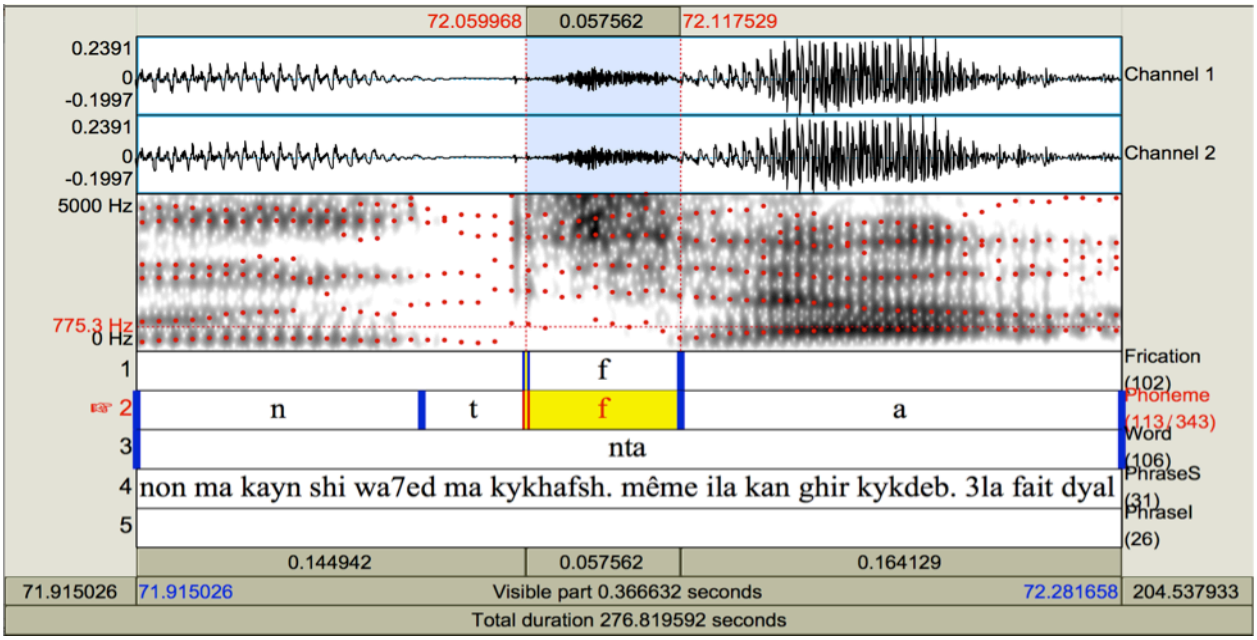

Fig. 1 Example of coding system for /*nta*/ ("you"), with a stop closure

Furthermore, within the data I discovered that full lenition of the target phoneme was highly common. The presence or absence of a closure played a prominent role in the speakers' dialect perception, as I will discuss below. In such cases, each frication period was measured without the closure, and marked as a phonemic /t/. Figure 2 below shows this variant, with the frication period replacing the stop closure. Tokens of the emphatic /ṭ/ were coded but excluded from analysis because the emphatic coronal stops in Moroccan Arabic are not affricated; as far as the literature shows, affrication of emphatic coronal stops is only possible in Cairene Arabic (Haeri 1997, Youssef 2013: 241). Also excluded from analysis were tokens of /t/ in French and English loan words and code switches, because tokens of phonemic /t/ from French loan words are commonly incorporated into Moroccan Arabic with the emphatic /ṭ/ (Kenstowicz and Louriz

2009). Finally, tokens of /t/ following a sibilant or preceding a sonorant consonant were coded but excluded from analysis, because these phonological environments block the affrication of /t/ (Naciri 2014: 70-72).

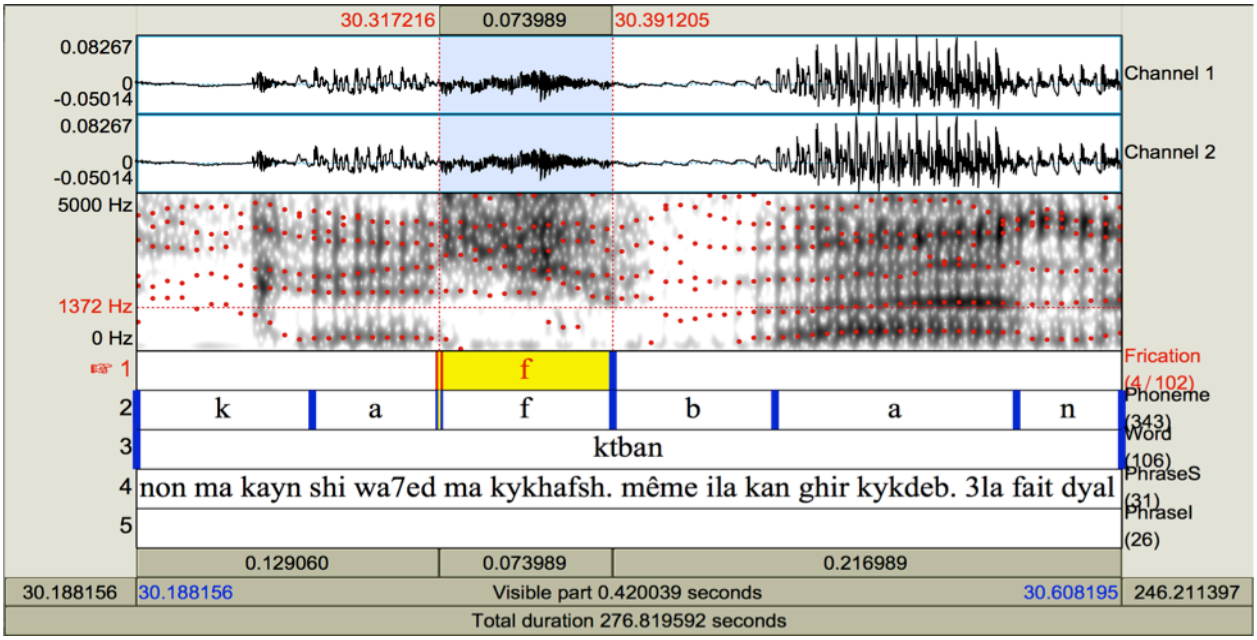

Fig. 2 Example of coding system for /*ktban*/ ("it happens"), without a stop closure

The primary acoustic metric used in this study was the center of gravity, sometimes referred to as the spectral mean. Spectral moments measurements were taken using a Praat script written by Wendy Elvira-Garcia (2015), which takes the average measures of the four spectral moments over the entire frication period, as well as temporal measures of the frication period. Given that the primary goal is to differentiate between tokens of [ts] and tokens of [tʃ] in the data, I primarily compared the spectral properties of the frication duration – that is, the alveolar sibilant [s] versus the palato-alveolar sibilant [ʃ]. Numerous studies have indicated that the most reliable acoustic correlates of place of articulation in fricatives are the spectral moments measurements (Heinz and Stevens 1961, Shadle 1985, Jongman, Wayland, and Wong, 2000, Abu-Al-Makarem 2005, Al-Khairy 2005, Gordon, Barthmaier, and Sands 2006). Jongman, Wayland, and Wong (2000: 1257) show that center of gravity and skewness most reliably

differentiate between the sibilant fricatives, and Gordon, Barthmaier, and Sands (2006) show that center of gravity was a significant predictor of place of articulation between sibilants in 6 of the 7 languages surveyed in their cross-linguistic study. Both center of gravity and skewness were originally tested, following the Jongman et. al (2000) study, but it was found that skewness was not a robust measure of place of articulation for this dataset. Thus, this study will focus primarily on center of gravity.

It should be noted that one cannot accurately make a direct comparison between the mean CoG values found for the target phonemes /s/ and /ʃ/ in other acoustic studies of fricatives and the mean CoG values in this study – within the various studies listed above of the spectral dynamics of fricatives, the average CoG measurements for the target phonemes varied greatly between languages. As Reidy (2016: 2526) explains, the different phoneme inventories between languages are correlated with gestural differences in articulation; thus, the spectral dynamics of fricatives will differ between languages. Furthermore, of the available studies on the spectral dynamics of Arabic fricatives, Al-Khairy (2005) analyzed data from Modern Standard Arabic, and Abu-Al-Makarem (2005) analyzed data from the Al-Khat dialect of Gulf Arabic (both studies analyzed data from male speakers). Thus, in the absence of data on Moroccan Arabic, direct comparison is difficult. Al-Khairy (2005: 71-72) found an average CoG value of 5546Hz for /s/ and 3888Hz for /ʃ/ (he did not report the standard deviation) in Modern Standard Arabic, and Abu-Al-Makaram (2005: 121) found an average CoG value of 6527Hz with a standard deviation of 433Hz for /s/ and an average CoG value of 4127Hz with a standard deviation of 596Hz for /ʃ/ in Gulf Arabic. Taken in relative terms, we may thus expect the CoG of /s/ to be roughly 2000Hz higher than the CoG of /ʃ/; in other words, the CoG of the frication period of /t/

should be roughly 2000Hz higher in speakers of Meknassi Moroccan Arabic than it is for the frication period of /t/ in speakers of Cassaoui/Slaoui Moroccan Arabic.

For statistical analysis of the data set, a linear mixed effects model using the lmer fuction of the lme4 package was fit with the continuous dependent variable of center of gravity (henceforth CoG), and presence of closure period (Closure)[4] and city of origin (OriginMeknes and OriginCasa-Sale) as binary fixed effects, an interaction between closure and origin (Origin*Closure), and Speaker as a random effect. A random slope for Closure within Speaker was initially tested, but was found to not have significant effects and was thus excluded from the model. P values were obtained using the mixed function of the Matrix package. After determining the significant predictors of CoG in the mixed effects model, inter-speaker variation was tested with unpaired two-tailed t tests between each of the speakers.

3.3 Hypotheses

1. There will be a main effect for Origin.
2. There will not be a main effect for Closure.
3. While Origin will be a significant predictor of CoG, the Meknassi informant M1's average CoG values will be significantly lower than expected for the alveolar sibilant [s].

[4] While I initially did not intend to include Closure as a factor, M1's emphasis on the closure period in affricated /t/ while imitating a Cassaoui accent suggested to me that closure duration may be a salient marker of Cassaoui Arabic.

4 Results

4.1 Mixed Effects Model

The study analyzed 2 hours of interview data, resulting in 673 tokens of affricated /t/. Table 3 below describes the data, divided by speaker.

Speaker	ClosureYes	ClosureNo	Total
M1	83	105	189
M2	138	74	213
S	114	44	158
C	59	54	113

Table 2 Total tokens of affricated /t/

Tables 3 and 4 below give the results of the linear mixed effects model with a dependent variable of CoG. The model found main effects ($p < .001$) for both Closure and Origin, and no significant effect for the interaction between Closure and Origin. CoG values for OriginMeknès are estimated to be around 739Hz higher than CoG values for OriginCasa-Sale, and CoG values for ClosureYes are estimated to be around 393Hz higher than CoG values for ClosureNo. The model was originally run with current city of residence (Current) as a third fixed effect, but it was found to be collinear with Origin (only one of the speakers – M2 – had different values for Origin and Current). As stated previously, a random slope for Closure|Speaker was found to not be a significant source of variation in the model and was thus excluded.

Fixed Effects	**Estimate Std**	**t value**	**Std Error**	**Degrees of Freedom**	**p value**
(Intercept)	3449.89	46.146	74.76	43.60	< 2e-16 ***
OriginMeknès	739.20	**7.958**	92.89	26.90	**1.51e-08** ***
ClosureYes	393.58	**4.223**	93.19	505.50	**2.86e-05** ***
OriginMeknès:ClosureYes	-183.59	-1.544	118.88	557.30	0.123
Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1					

Table 3 Fixed effects in linear mixed effects model

Random Effects	Variance	Standard Deviation
Speaker	357.6	18.91
Residual	545965.6	738.89

Table 4 Random effects in linear fixed effects model

Thus, within the linear mixed effects model both Closure and Origin (but not the interaction between Closure and Origin) have been found to be reliable predictors of CoG, with Speaker as a significant source of variance. This suggests that the speakers did remain close to their native pronunciation of /t/ on the whole, or rather that their pronunciation of /t/ most closely resembled that of other speakers with the same value for Origin. While pair-wise comparisons between the speakers should be taken with a grain of salt, given that the mixed effects model showed Speaker to be a source of variance, they do provide some interesting results, particularly when considered alongside the informants' responses to the metalinguistic questions and within the framework of the linguistic market; this will be discussed below.

4.2 Inter-Speaker Production

Having established that city of origin is a reliable predictor of CoG in this data set, which suggests that each informant for the most part produced CoG values consistent with the other informant native to his region, it would be pertinent to understand *how* close the CoG values were within the two groups of informants and between the groups, still keeping in mind that Speaker was not a fixed variable in the regression model. Table 5 and Figure 3 below depict the average CoG values produced by each of the speakers in the data set:

Values/ Speaker	M1	M2	C	S
Mean CoG (Hz)	4207.96	4382.19	3654.91	3725.17
Std. Deviation (Hz)	777.39	710.38	562.75	882.4

Table 5: Mean CoG values and Std Deviation per speaker

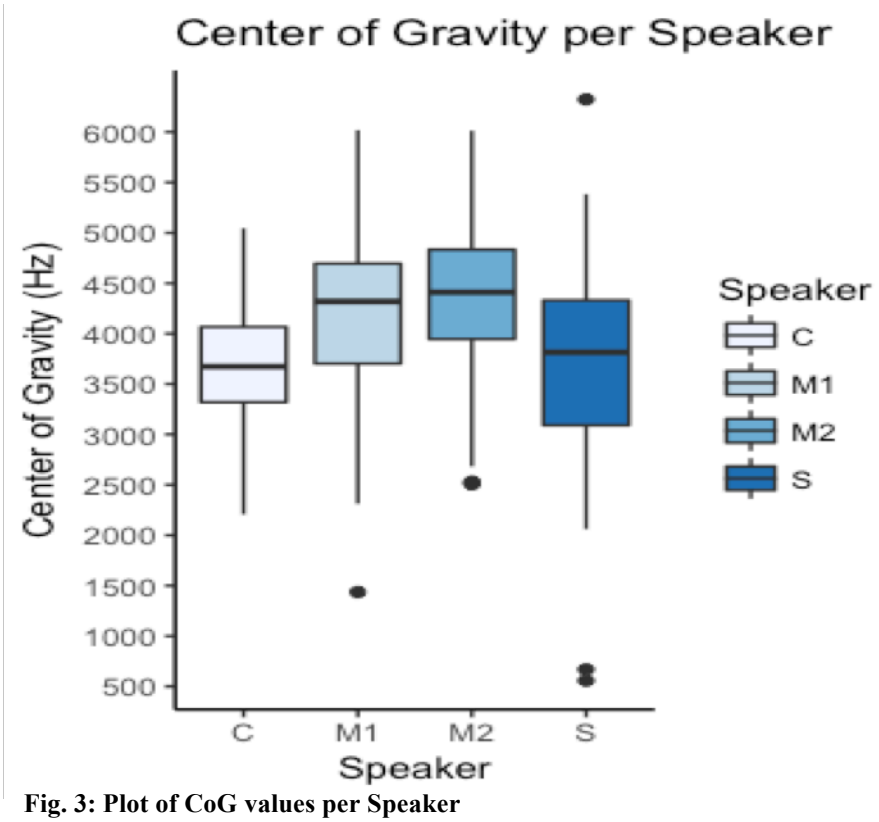

Fig. 3: Plot of CoG values per Speaker

It is important to note firstly that one cannot state in absolute terms whether or not these speakers are articulating the alveolar affricate [ts] or the palato-alveolar affricate [tʃ] in their natural speech based on this data alone. C has the lowest mean at 3654Hz and an inter-quartile range of approximately 3300Hz to 4000Hz, and M2 has the highest mean at 4382Hz and an inter-quartile range of approximately 3800Hz to 4700Hz. If one was to compare this to both Al-Khairy's data for Modern Standard Arabic and Abu-Al-Makaram's data for Gulf Arabic, it would seem like all of the speakers were articulating the palato-alveolar fricative almost universally. However, recalling Reidy's (2006) conclusions, we cannot assume the mean CoG

values for fricatives in Modern Standard Arabic or Gulf Arabic to reflect CoG values for fricatives in Moroccan Arabic. This kind of comparison would require 1) a higher sample size of rappers participating in this study, and 2) a broad study of the acoustic correlates of fricatives in different dialects of Moroccan Arabic as a basis of comparison. Barring that data (which I hope to collect in collaboration with colleagues in Morocco in the future), and with the understanding that inter-speaker variation likely has an effect on the spectral dynamics of the fricatives, one cannot come to a useful understanding of these speakers' affrication patterns from comparing the spectral dynamics of their frication periods to a set of constants. However, comparing their CoG values to each other produces some interesting observations, especially in light of their responses to the metalinguistic questions and their relative positions in the community of practice.

That being said, there are a few observations one can make from an interpretation of the box plot. Speaker C, who has lived in Casablanca his entire life, grew up in the medina (the old city), and considers himself authentically Cassaoui, has the lowest median CoG value and the shortest interquartile range that is skewed right. M2, the Meknassi who moved to Casablanca in 2009, has the highest median CoG – higher than the Meknassi Speaker (M1) who had never lived in Casablanca.

Pair-wise comparisons confirm the results of the mixed effects model (see Table 6 below). As previously established, Origin was a significant predictor for CoG, which suggests that speakers with the same Origin value should not have a significant difference in their CoG values. This is the case between Speaker C and Speaker S, but not between Speakers M1 and M2 – M1's CoG values are significantly ($p < 0.05$) lower than M2's CoG values. The t values for each pair further confirms this result – the t values for the M1-S and M1-C pairs are significantly lower than the t values for the M2-S and M2-C, respectively. This result refutes what speaker M1

had self-reported – that M1 actively tries to sound "like [his] Cassaoui friends" (this will be discussed more below).

Pair	t value	Std Error	Degrees of Freedom	p value (adjusted with bonferroni correction)
C-S	0.7422	94.662	268	2.7516
M1-M2	2.3502	74.116	401	0.1152
M1-S	5.4242	89.008	346	< 0.0001***
M1-C	6.5793	84.06	300	< 0.0001***
M2-S	7.939	82.754	369	< 0.0001***
M2-C	9.3926	77.427	323	< 0.0001***
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 6: Unpaired t tests between speakers

5 Discussion

5.1 Response to Metalinguistic Questions

It is pertinent to discuss the informants' self-evaluation, given that inter-speaker variation is a major focus of this case study and the speakers' perceptions of their own speech is informative of their general position vis-à-vis the phoneme in question and phonetic variation as a marker of dialect in general. I will draw attention to two metalinguistic questions that informed this study:

1. How can you differentiate accents from around Morocco?
2. Have you ever changed the way you speak for any reason?

When asked to explain different dialects in Morocco, none of the informants explicitly mentioned the variable examined in this study. Furthermore, none of the informants specified differing pronunciation of individual phonemes as significant dialect markers. The most common features they mentioned were prosody and region-specific lexical items, for example: "Marrakechis, they speak like they're singing" (M2), and "In the North they say *ntina* [the Northern variant of 'you']" (S). In fact, when asked about pronunciation, informant C became defensive and stated that sounds are neither important to the way one speaks nor to the way one raps. M1 alluded to the palatalized realization of /t/ when asked to imitate the Casablancan accent, with very exaggerated [tʃ] pronunciation. Interestingly, though, he did not focus on place of articulation of the frication noise as the primary acoustic correlate of this feature – his CoG values for these few tokens were not significantly different from his average CoG values in normal speech. Instead, he focused on the closure, producing much longer closure durations than average. This, in particular, informed the addition of closure as a fixed variable in the linear mixed model.

In responding to the question about changing dialect, both S and C referred only to register shifting in formal environments; it should be noted that they did not mention shifting from Moroccan Colloquial Arabic to Classical Arabic – they mentioned shifting from Moroccan Arabic to French in formal environments (and given his frequent usage of French discourse markers, it would appear that C was using a more formal register in the interview). M2, the informant who had moved from Meknès to Casablanca, mentioned that he changed his speech to sound "more Casablancan" when he moved, but in the previous few years since he had begun spending more time in his home city, he had tried to shift his accent back to what he evaluated as his native dialect. Finally, M1, who had never lived outside of Meknès long-term, did not mention shifting his regional pronunciation, but mentioned that since he had begun to work with native English speakers he had shifted his Moroccan Arabic to include fewer regional lexical features and be "more basic". When questioned after the interview about his production of [tʃ] during the course of the interview, he responded, "Oh, I guess sometimes I try to sound more like my Casablancan friends."

5.2 Discussion of Statistical Results

The results confirm one of the three hypotheses. Place of origin was shown to be a reliable predictor of CoG value, indicating that the respondents largely produced affricated realizations of /t/ consistent with respondents from the same region. This would also indicate that CoG is a reliable acoustic correlate of regional variation in the realization of this phoneme – the respondents from the coastal area between Salé and Casablanca reliably produced CoG values on the lower end of the spectrum, consistent with articulation of the palato-alveolar fricative [ʃ], and the respondents from Meknès reliably produced CoG values on the higher end of the spectrum, consisted with articulation of the alveolar fricative [s] (although actual distribution of these

realizations is a complex issue). This result constitutes an acoustic confirmation of regional variation in production of affrication, which I intend follow up with a more extensive acoustic study of affrication of /t/ in collaboration with colleagues in Morocco.

Pair-wise comparisons between the informants confirm this relationship between Origin and CoG, refuting my hypothesis that M1's attempt to adopt a street-conscious identity through use of Cassaoui features would be reflected in the CoG of his affrication. M1's CoG values refute his self-reported tendency to speak like the Cassaoui rappers he knows, at least with respect to this feature of the dialect – his CoG values were not significantly lower than those of M2, the other Meknassi rapper who intentionally modified his speech to sound more Meknassi after first accommodating to the Cassaoui dialect when he moved to the region. None of the informants specifically noted alveolar or palato-alveolar affrication of /t/ as a salient feature of either dialect, though M1 recognized it when prompted. This suggests that variation in the type of affrication is not a socially salient marker distinguishing Cassaoui Arabic from Meknassi Arabic, at least not within the context of street language.

The other hypothesis that was not supported by this data was the second hypothesis – the presence of a closure (that is, whether or not /t/ was realized as an affricate or fully lenited) was, contrary to expectation, a significant predictor of CoG. This link between the presence of a closure period and CoG of the frication period suggests that closure duration is an acoustic correlate of affrication of /t/ in Moroccan Arabic, in addition to CoG of the frication period. However, curiously, the model showed that the CoG estimate for ClosureYes was higher than for ClosureNo – this would suggest that, in spite of M1 indicating that the closure period was a characteristic of Cassaoui Arabic, it was the Meknassis who were more likely to retain the stop closure. I intend to explore this link further in future studies.

5.3 Affrication and the Street-Conscious Identity

But what do these results mean from a broader perspective? The data for this study was taken entirely from the semi-structured interview, the most casual style of speech tested in the sociolinguistic interview, unlike Alim's (2003, 2006) study of the casual speech and rap lyrics of Eve and Juvenile, which proposed the cultivation of a "street-conscious identity" (2006: 113) within these artists' performance registers but not in their casual speech. What are the implications of these respondents consciously choosing, or not choosing, to shift their casual speech style, but their production not reflecting their conscious choice? Furthermore, what are the implications of their attitudes towards the concept of phonetic style partially comprising one's linguistic identity (as one may recall, speaker C was resistant to the notion that sounds are significant dialectal features)? To put this in context, we must look at it from the dynamics of this particular community of practice – that is, the Moroccan Hip Hop community – and examine the role of linguistic capital both from the perspective of the role it plays in the community's power dynamics and from the perspective of artistic authenticity.

On the one hand, these results are consistent with Bourdieu's (1977) theory of the linguistic market, which frames linguistic acceptability in terms of the power relations within a community. In his words: "All particular linguistic transactions depend on the structure of the linguistic field, which is itself a particular expression of the structure of the power relations between the groups possessing the corresponding competencies" (1977: 647) This relation is reflected in M1's style shift: his attempted usage of the Cassaoui/Slaoui palato-alveolar affricate in casual speech indicates that this feature is a linguistic capital that he must use in order to access the same power as Casablancan rapper. In other words, there is value in sounding

Casablancan, and realizing /t/ as [tʃ] is part of that. However, this was not borne out in his actual production.

There is prior research pointing to the social value in "sounding Casablancan" – in Hachimi's (2007) study on women of Fassi origin living in Casablanca, she found that the subjects, while still retaining generally positive opinions of the more erudite-sounding Fassi accent, dropped some particularly salient features of Fassi Arabic because they perceived it to sound too naïve. In the words of one informant: "Fessis from Fez are a bit naïve, their dialect is almost unintelligible… they are a little behind, they are shy, and they are very traditional. But those who come to Casablanca have become tougher…" (2007: 115). By way of adopting Casablancan features, the respondents in Hachimi's study were trying to access linguistic capital that would allow them to sound *herfa*: tough, harsh, street-smart. This dialect, then, is the ideal candidate for rappers such as M1 to adopt in order to construct a "street-conscious identity" and access more social capital as a Hip Hop artist. Per Alim (2006): "…*spittin* ("speakin, rhymin") the code of the streets is essential to the notion of a Hip Hop Nation (HHN)" (109). In other words, within the Hip Hop community (both the global HHN and local Hip Hop scenes) the language of the street is the relevant linguistic capital that community members must speak with competence in order to access legitimacy.

There is myriad evidence to point to Casablanca as a central location in Moroccan Hip Hop culture, from its status as Morocco's largest economic center and the site of rapid post-independence urbanization (Miller 2007), to its role in hosting major Hip Hop and fusion festivals such as L'Boulevard (Caubet, Benlyazid, and Mettour 2007), to its symbolic role as the birthplace of Nass el Ghiwane (Almeida 2013). However, to whatever extent that M1 used Cassaoui pronunciation to construct his street-conscious identity, speaker M2 instead makes an

active effort to rep his hometown of Meknès. One could interpret this within the linguistic market framework – as a rap producer living in Casablanca, M2 held a higher status in the community and therefore did not need to consistently use the higher-prestige linguistic capital in order to command respect (Bourdieu 1977: 659) – but this would ignore another important element of Hip Hop politics: the question of authenticity, or "keeping it real." Pennycook (2007) writes: "Keeping it real in the global context is about defining the local horizons of significance while always understanding the relationship to a wider whole" (104). This results in a significant tension between using features of Black American Hip Hop to access authenticity within the global HHN and using features of local language and culture in order to access authenticity within the local community. As various chapters in Terkourafi (2010) explore, the particular balance of these two elements that will allow Hip Hop artists to become successful is dependent upon the local Hip Hop culture – from the broader regional level, to the national level, to the community level.

Within Morocco in particular, different local rap scenes and even different styles of rap will use combinations of linguistic codes, depending on their message and audience. For example, "commercial" rappers in Morocco will rap primarily in English in order to directly invoke the global authenticity of American Hip Hop, whereas "conscious" rappers will rap almost exclusively in Moroccan Arabic (Harrouchi 2015). Furthermore, the degree to which localization of themes and language is concentrated at the community level or at the broader national level changes from city to city – rap scenes such as Casablanca and Salé have a higher concentration of conscious rappers, whereas imperial cities like Meknès have a strong current of *taqlidi* ("traditional") rap, in which artists invoke both broader traditional Moroccan culture and specific local cultural artifacts. For example, when H-Kayne raps "*likoul lmagharba/H-Kayne*

brhythme 'Issawi jadba/wraha nayḍa nouḍ"[5] they're both calling upon all Moroccans to recognize their shared traditional heritage and specifically repping traditional Meknassi culture via the *'Issawa* Sufi brotherhood. All of this indicates that the process of localization of Moroccan rap is not uniform within the Moroccan Hip Hop scene, nor is the Moroccan Hip Hop scene itself a monolith – different artists with different styles localize their language to varying degrees in order to best represent their notion of authenticity, and we can see this tension between a broader Moroccan Hip Hop localization and a city-specific localization within the results of this study: M1 adopts the street language of the country's largest urban center to access the authenticity of that city's Hip Hop artists, but M2 reverts to the speech of his home town, to access the authenticity of keeping it local.

[5] Translation: "For all the Moroccans/H-Kayne is in the rhythm of an 'Issawi trance/it's getting up, [you] get up"

6 Conclusion

This acoustic study of /t/ affrication amongst four Moroccan rappers definitively showed regional dialectal variation in realization of the phoneme, and is the first study to do so, but the sociolinguistic implications of this variation were less definitive. While one Meknassi artist did claim that he tried to access Cassaoui pronunciation in his speech, this was not borne out by the CoG values of his affrication, suggesting that there may be other, more salient, acoustic features that may constitute linguistic capital within the Moroccan Hip Hop community. The results of the study also suggest an interesting divide in strategies for accessing power and artistic authenticity within the community – while one speaker did affiliate the Cassaoui dialect with the code of the streets, and attempted to adjust his speech thusly, the other explicitly preferred to use his native pronunciation in order to remain authentically Meknassi. This reflects the inherent tensions in "keeping it real", with the first speaker focusing on the authenticity inherent in repping the larger Hip Hop community in Morocco, and the second speaker focusing on the authenticity inherent in repping his home town. Further study is necessary to identify what the so-called "showcase variables" of Moroccan Hip Hop street code truly are, and to understand the relationship between local identity, regional identity, and authenticity within the Moroccan Hip Hop Nation.

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